

# **An Examination of the Pathways Through Which Social Class Impacts Health Outcomes**

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## **EXECUTIVE SUMMARY**

Despite the relative affluence of Western World Nations it is well accepted that health outcomes vary with social class position. This systematic difference applies to both morbidity and mortality rates with lower social class groups experiencing a wide array of greater health problems and probability of earlier death. This disparity becomes evident at birth and continues throughout the life cycle. Even in the young adult phase when one is in their prime of life, lower-class individuals are relatively less healthy. Illustrative examples of health indicators include low birth weight, obesity, heart disease, lung disease, incidence of smoking, asthma, cancer, diabetes, experience of sick days, and also extend into areas such as accident rates, suicide, exposure to violence, and mental health.

The purpose of this paper is to delineate the class mechanisms driving persistent health inequality as a basis for informed Public Policy discussion. The conclusion is that since these class mechanisms constitute fundamental features of social organization, any serious attempt to tackle the inequality requires unprecedented commitment to social change. Generating sufficient political will appears to be a bigger barrier to change than our collective knowledge as to how change can be effected. There are small-scale examples of programs that have influenced aspects of the class mechanisms to be examined. The problem is that these successes have been localized and often supported for only limited periods. Political will is required for taking the long-term view necessary to integrate and scale these learning's to a national level. Political will stems from weight of public opinion. I argue that involvement in a substantial public awareness program may be the single greatest contribution that marketing communicators can make in a drive towards health equality. Without strong public support accumulated learnings regarding suitable interventions will remain insufficiently resourced.

The health disparity is not just a function of poverty. It is gradational in nature. A decline in health is observed with each successive class group as one moves down the scale of advantage. It is intriguing that the gradational effect applies even at the upper end of the social class scale where the upper class is healthier than the upper-middle group just below them. This suggests that health inequality stems from more than just economic factors. A set of characteristics has been found to systematically differ by social class. They fall broadly within the following domains: 1) psychological domain, including norms and habits, abstract-level modes of thought, health knowledge, and behavioral intentions; 2) behavioral constraints, including economic resources and situation effects; 3) physical influences, including physiological stress, genetic dispositions, and environmental conditions.

The ensuing examination will point to the pivotal role of the psychological domain. In particular, a small mix of abstract-level modes of thought drive health-related behavioral intentions. They also drive motivational dispositions that impact acquisition of economic resources, and moderate the degree of physiological damage stemming from psychological stress. For example, 'present-future orientation' influences intention to perform health-promoting behaviors that may only attract payoff in the future; 'achievement orientation' influences accumulation of economic resources that enhance quality of life; 'sense of control' over one's environment moderates the detrimental effects of stress.

These abstract-level modes of thought are molded in the childhood experience and once formed have been found resistant to change. If they do play the pivotal role argued in this paper then our primary opportunity to create long-term change rests in childhood interventions. I argue that a public policy focus on childhood development holds the greatest chance of

breaking down inequality over the long-term. There is a considerable body of knowledge as to how superior cognitive skills and motivational characteristics currently concentrated in higher-class groups can be fostered in lower-class children. The challenge lies in garnering support to implement this knowledge in a scalable manner. Note that our understanding of how to manipulate abstract modes of thought in adults is far less developed. Generating the required level of public support will be easier through a focus on children. Public sentiment for childhood inequity will be more forthcoming, than support for disadvantaged adults where the popular perception is often that circumstances are a product of their own making.

Once political will is generated a minimum child-focus should encompass five areas: (a) prenatal practices of the mother to foster behavior that will result in healthy conception; (b) foster sense of security and stimulating environment for cognitive and emotional development in the preschool years; (c) ensure healthy physical development; (d) enhance the capability of the education system to realize cognitive and motivational potential; (e) encourage a home environment that works in synergy with the educational system.

## **AN EXAMINATION OF THE PATHWAYS THROUGH WHICH SOCIAL CLASS IMPACTS HEALTH OUTCOMES**

The well-documented growth of inequality in income and wealth coupled with persistent inequalities in health found in the United States and elsewhere, have refocused attention on social class as a key determinate of health outcomes (Acheson 1998; Adler and Ostrove 1999; Davidhizar, Shearer, and Reimer 2000; Kawachi, Kennedy, and Wilkinson 1999; Williams 1990). Whilst the correlation between social class and health status has long been recognized by Government organizations and Academic communities, agreement as to the mechanisms driving this inequality are lacking. Socioeconomic differences in health are not just a distinction between the poor and the rest of society, rather the phenomena is gradational whereby the highest income group is healthier than the group just below - and so forth (Adler et al. 1993; Dunlop, Coyte, and McIsaac 2000; Marmot, 1999; Wolff 1995). The fact that health and social class is not simply a function of 'haves versus have-nots' makes the subject all the more intriguing. For example, why would the gradational effect in terms of health advantage still hold across the upper and middle tiers of society where a relatively affluent lifestyle is the norm?

The same gradational pattern of increasing health disadvantage with each progressively lower level of social class group has been observed across developed Western Nations (Harpham and Stephens 1991; Rodgers 1972; Waldmann 1992; Wilkinson 1994). These distinctions hold across alternative indicators of social class such as income, education, occupation and wealth (Crompton 1998; Ostrove, Feldman, and Adler 1999; Wilkinson 1999). The inequality holds across a broad range of health indicators such as mortality rates, low birth weight, obesity, heart disease, lung disease, incidence of smoking, asthma, cancer, diabetes, experience of sick days, lead content in blood, and also extend into areas such as accident rates, suicide, and exposure to violence and mental health (Aday 1993; Bolig, Borkowski, and Brandenberger 1999; Glover and Wollacott 1992; Pamuk et al. 1998). It is noteworthy that inequality in health status between social classes has persisted over time, despite advances in quality and access to health services, and institution of a range of public education and community reinvigoration programs (Lee 1999; Long and Marquis 1999; McCarthy et al. 2000; Schorr 1998). Complicating our limited understanding of the mechanisms underlying the relationship between class and health is a lack of agreement as to the nature of the social class concept itself. The conception of class varies by researcher ranging from a purely economic notion through to a psychosocial specification. Lifecycle, race, ethnicity, and gender effects also confound examination of class influences on health.

A considerable body of research examining the relationship between class and health will be discussed in this paper. However, these studies have usually been confined to consideration of limited sub-sets of class influences. It will be seen that the effect of social class on health stems from multiple influences. Each sub-set of influences does not operate in isolation. Rather, they interact as a complex system that exerts continuing influence across the life-course. An example of this complexity is the evidence that health behaviors encompassing patterns of diet, exercise, and smoking appear to account for much less of the variance in class health inequality than is popularly imagined (Hann, Kaplan, and Comacho 1987; Hirdes and Forbes 1992; Lantz et al. 1998; Tarlov 1999). It will be seen that many additional types of influences work in concert to determine the health disparity. The goal of this paper is to review the complete range of health influences that can be attributed to class mechanisms and provide a basis for informed Public Policy discussion.

Whilst the focus will be on exploration of the relation between health and social class, the discussion will also illuminate the underlying mechanisms of social class. These mechanisms highlight the enduring, robust nature of the class phenomena, and that it operates as a fundamental principle of social organization across time, nation, and culture. Since each class group exhibits an array of distinctive thought, lifestyle, and consumption behaviors, it constitutes one of the most basic segmentation variables for marketers.

### **SOCIAL CLASS**

At the broadest level social class can be summarized as an open (to some degree) stratification system that is associated with a systematically unequal allocation of resources and constraints. This broad specification accommodates a number of

schools of thought. For example, resources and constraints may be limited to the economic sphere, in which individuals are clustered based on measures of income and wealth. This approach reduces class to a simple economic notion that governs access to goods and services. Unequal allocation of economic resources is a broadly acknowledged characteristic of class. However, a view limiting examination of class resources to just the economic sphere misses the point that class is a product of more complex social-psychological relations.

Class clusters exhibit distinctive subculture characteristics (Crompton 1998; Goldthorpe and Marshall 1992; Weber 1964). Unlike other types of subcultures where conscious group identity binds, members of class subcultures are not necessarily conscious of the groupings. Class is more macroscopic in nature than other subculture groupings for which we do hold conscious membership e.g. lifestyle, peer, or organizational groups (Holt 1997). A particular class subculture consists of a multiplicity of these more micro-level subcultures -- many of which are influential for only a portion of the lifecycle, e.g. a youth subculture that breaks up as individuals age, or membership in a community group that forms in later life. Membership within a class group remains relatively stable across the life-course (Baxter, Emison, and Western 1991; Goldthorpe, Llewellyn, and Payne 1987). Class structure is evident in every settled society. At the heart of this social organization lies inequitable distribution of a mix of resources and constraints that systematically impacts material advantage and quality of life.

A subculture conceptualization requires that social classes exhibit distinctive modes of thought and behavior (Levy 1966; Robertson 1987). A broad range of these distinctions will be identified throughout the paper. The systematic mechanisms driving these subculture groups stems from the lifelong socialization process (Bourdieu 1984; Moschis 1987), and possibly heritable tendencies (Ellis 1994). Examples of these effects will also be discussed. Stability of class groups stems from systematic patterns of social interaction resulting in a tendency for 'in-group' closure (DiMaggio and Mohr 1985). This reflects the social-psychological notion that greater similarity between two individuals fosters comfortable social interaction (Forgas 1985; Forsyth 1999). Weber (1964, p. 136) described this class phenomena as "a subjective feeling state that they belong together". Shared attitudes and norms promote personal liking which drives a tendency for primary social interaction to be within one's own class group (Baxter, Emison, and Western 1991; Goldthorpe and Payne 1986; Jones and Davis 1988).

'Resources and constraints' encompasses all the ways in which particular life conditions can be differentiated by social class. Any condition that affects a person's place in society, shapes their opportunities, and colors their view of the world could be construed as a resource or constraint (Mayer and Buckley 1970). Underlying this broad admission is the understanding that all distinctive life conditions can be interpreted (albeit with varying degrees of influence) as resources or constraints, in that they have potential to influence and interact with each other in a holistic way. It reflects the notion that an individual is the product of their experiences -- both large and small. It will be seen that each type of resource discussed below tends to be distributed in a gradational manner. It is this gradational distribution that creates superior life chances for each successive class group as one moves up the scale. It will be argued that resources other than money constitute major contributors to the superior quality of life experienced by higher-class groups. Health represents just one aspect of this superior quality of life.

### **Identifying Class Distinctive Resources and Constraints**

To develop understanding of the mechanisms driving health inequality the following strategy was adopted: first, a set of resources and constraints that potentially impact health inequality was identified through literature review; second, these resources were classified into three broad categories, each with several subcategories. Illustrative examples of each category are provided in table 1; and finally a conceptual framework was developed in which hypothesized causal relations were specified. An introduction to each of the resource categories follows.

**TABLE 1**  
**Illustrative Examples of Resource Categories**

Resource Categories	Subcategories	Examples
Psychological Domain	Abstract Modes of Thought	<ul style="list-style-type: none"> <li>• Future orientation</li> <li>• Sense of control</li> <li>• Goal persistence</li> <li>• Pessimism</li> <li>• Achievement orientation</li> <li>• Open-mindedness</li> <li>• Emotional control</li> </ul>
	Cultural Norms & Habits	<ul style="list-style-type: none"> <li>• Restrained eating</li> <li>• Emphasis on appearance</li> <li>• Diet concern</li> <li>• Hygiene priority</li> <li>• Peer pressure to smoke</li> <li>• Internalized value on health</li> </ul>
	Health Knowledge	<ul style="list-style-type: none"> <li>• Knowledge base</li> <li>• Perceived relevance of outcomes</li> <li>• Comprehension of messages</li> </ul>
Behavioral Constraints	Economics	<ul style="list-style-type: none"> <li>• Ability to pay for health needs</li> <li>• Ability to pay for health promoting lifestyle</li> </ul>
	Situation Effects	<ul style="list-style-type: none"> <li>• Access to community facilities</li> <li>• Access to transport</li> <li>• Access to health-related facilities</li> </ul>
Physical Influences	Genetics	<ul style="list-style-type: none"> <li>• Dominance trait</li> <li>• Achievement motivation</li> <li>• Novelty seeking</li> <li>• Cognitive capacity</li> </ul>
	Environmental Conditions	<ul style="list-style-type: none"> <li>• Environmental pollution</li> <li>• Hygienic living conditions</li> <li>• Hazards in workplace</li> </ul>
	Physiological Stress	<ul style="list-style-type: none"> <li>• Physiological effects of stress</li> </ul>

**Psychological Domain:** this category encompasses all the belief, attitudinal, behavioral preference and abstract cognitive distinctions. A set of these distinctions should be evident if a subculture specification of class is valid. Three subcategories are defined:

*Abstract modes of thought:* abstract general-level dispositions, which indirectly guide specific behavioral intentions. Includes distinctive conceptual resources, cognitive styles, personality traits, and aspects of self-concept. The key commonalities are that these modes of thought are reasonably consistent across the life-span and their influence reaches across multiple behavioral domains.

*Cultural norms and habits:* norms and habits are behavioral preferences that have primarily been instilled in childhood socialization. They consist of the set of behavioral preferences distinctive to class groups. Unlike abstract modes of thought, a particular cultural norm influences a more limited behavioral domain.

*Health knowledge*: potential to comprehend and apply health knowledge to foster general wellness and manage medical needs.

**Behavioral Constraints**: this category includes any barrier that inhibits an individual from performing a desired health-promoting behavior. There are two subcategories.

*Economic resources*: these constitute financial limitations on ability to purchase health-promoting goods, services, and activities.

*Situation constraints*: consists of access barriers in terms of lack of available health facilities in the community, transportation impediments, or time constraints on utilizing facilities.

**Physical Influences**: this category includes distinctive conditions that have direct impact on physiological health. Note that the previous two categories indirectly impact physiological wellbeing via dispositions and behaviors. There are three subcategories.

*Environmental conditions*: detrimental conditions in the living and working environments that have direct health effects. For example, toxicity effects resulting in elevated blood-lead levels.

*Physiological stress*: the direct physiological impact of stress when accompanied by low sense of control.

*Genetics*: distinctions in both heritable physical outcomes and cognitive tendencies.

### **A Framework for Analyzing Resource Impacts**

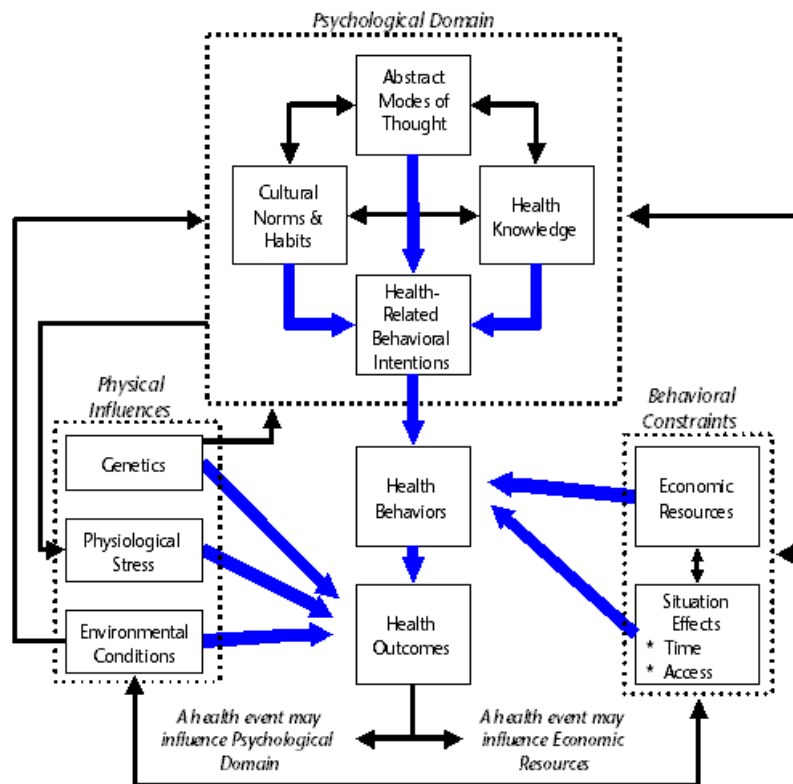
Each of these resource categories will be further developed and illustrated below. However, this current section introduces a conceptual framework as to how each resource impacts health outcomes. It will be employed to inform public policy discussion in the concluding section. The framework laid out in figure 1 includes each of the resource categories detailed above. It specifies a set of hypothesized pathways of influence. Rationale for pathway specification will be developed in subsequent sections. Note at this point that each resource category is associated with multiple pathways to health outcomes. Many are indirect. For example, this framework hypothesizes that the health influences of the psychological domain are indirect via behavioral intentions, physical influences and behavioral constraints. Note also the distinction made between health-related behavioral intentions, actual health behaviors, and resultant health outcomes (following Ajzen 1988; Fishbein and Ajzen 1975). For example, a woman may hold a positive intention towards getting a mammogram, but may be constrained from actual behavior due to lack of access to facilities. Discussion as to how each resource influences health follows.

## **THE CONTRIBUTING ROLE OF EACH RESOURCE CATEGORY**

### **Psychological Domain: Abstract Modes of Thought**

There is a considerable body of evidence that it is the abstract, general-level dispositions that indirectly guide the patterns of our more specific attitudes (e.g. Botschen and Hemetsberger 1998; Gutman 1982; Olson and Reynolds 1983; Valette-Florence 1998). So a causal relation between our many object-specific attitudes can usually be traced back to a more limited set of general-level dispositions. For example, Halson and Baron (1994) described the tendency for one to hold either a 'future' or a 'present' orientation as being a type of general-level thought disposition. A present-orientation may manifest in more positive attitudes towards behaviors considered less healthy, but are attractive in that they provide short term sensual gratification -- such as eating fatty foods. The more abstract, general-level thought dispositions could be described as being very centrally held attitudes (Homer and Kahle 1988). Many of these general-level dispositions have been found to be consistent across the life-course (Banaji and Prentice 1994). Given their enduring nature, the fact that there appear to be a limited number of these general-level thought dispositions, and their apparent guiding influence over a large range of specific behavioral attitudes, it is particularly interesting to examine patterns of difference between class groups.

**FIGURE 1**  
**Conceptual Model of Resource Influences**



One particular mode of thought that stands out as a central differentiator between class groups is self-efficacy -- the sense of control over one's environment and fate (Hess 1970; Kessler 1982; Taylor and Seeman 1999). Lachman and Weaver (1998) examined two aspects of control, including mastery and perceived constraint. Lower-class subjects were found to hold a more limited sense of mastery and higher perceived constraints. Mastery represents the empowering side of control in which the individual holds a sense that they are capable of achieving anything they want. Perceived constraints are disempowering in that the sense of control over one's future is limited. Empowered individuals are more likely to take proactive steps in terms of personal health, whilst dis-empowered individuals are more likely to take a fatalistic approach. Evidence supporting this was found in an examination of smoker's health beliefs whereby lower-class individuals exhibited poor self-efficacy perceptions, and more limited expectations for their health (Chamberland and O'Neill 1998). Stronger self-efficacy beliefs may be behind the finding that higher-class individuals are more likely to exhibit stronger persistence in pursuit of goal achievement (Hanson and Baron 1994; Henry 1998). Persistence is a desirable personal characteristic in pursuit of good health, since diet and exercise requires long term adherence to an often-restrictive behavioral regime.

Henry (2000) found that lower-class groups exhibit limited future focus and that they are less likely to plan for the future. This theme of lower-class being more focused on the present has also been noted by Martineau (1958), Bourdieu (1977), and Schaninger (1981). Zimbardo and Boyd (1999, p. 1284) proposed that time perspective influences many of our judgements, decisions, and actions -- "our decades-long research ... have convinced us that there are few other psychological variables capable of exerting such a powerful and pervasive impact on the behavior of individuals". These authors cite a range of research to support the relationship between time perspective and health behaviors. One reason for this lower-class present-orientation is that they hold a relatively pessimistic view regarding improvement of their material position in the future. Henry and Craig-Leas (1995) found that the salience of negative events, and of personal weaknesses

was much stronger amongst lower-class individuals. Stansfeld and Marmot (1998) found that lower grade workers exhibited greater depression, lower sense of wellbeing, together with greater salience of negative events. Pessimism, salience of weaknesses, lower sense of wellbeing will clearly impact self-efficacy and limit the sense that one can influence their situation. This reinforces an instant gratification orientation -- living day to day.

Self-efficacy seems to be at the core of a range of other class distinctive modes of thought. One is the value placed on accomplishment and achievement by higher-class individuals (Connell 1977; Henry 2000; McClelland 1987). Rokeach (1973) concluded that the priority values for higher-class individuals reflect greater self-direction and sense of possibilities. Henry (2000) found that higher-class individuals held a greater sense of possibilities and that this provided an empowering perception. This was associated with the individual being more likely to embrace change and to see change as an opportunity for growth. Lower-class individuals were found to be more likely to exhibit a preference for stability in their lives. This is probably related to limited self-efficacy perceptions in that a lower-class individual is more likely to worry about their ability to cope with change. Another manifestation of weaker self-confidence is the preference amongst lower-class groups to avoid stressful, challenging tasks in their lives (Henry and Craig-Leas 1995).

These modes of thought also tend to impact share of economic resources. Ability to pay for goods and services determines the material affluence of one's lifestyle. Modes of thought concentrated within the higher classes, including willingness to take on stressful challenges, achievement motivation, and focus on planning to attain future goals, can be construed as resources that better equip the individual for life's challenges. For example, achievement motivation drives higher-class individuals to strive for stand-out success; acceptance of change allows them to adapt and take advantage of opportunities associated with change; an open-minded disposition (Bourdieu 1984; Coleman 1983; Halson and Baron 1994) causes them to pursue and integrate knowledge which can constitute an advantageous tool in the new knowledge economy. Conversely, for lower-class individuals the tendency not to plan for future growth will be self-perpetuating in that an individual must first set goals in order to achieve them; avoidance of stress and challenge impinges chances for stand-out achievement; need for stability perpetuates a lack of progress in one's position; salience of weaknesses limits one's perceived potential (Kohn et al. 1990).

Another stream of research has examined disparity between class groups in terms of psychological wellbeing. Fiscella and Franks (1997) found that lower-class is associated with higher levels of psychological distress as measured by hopelessness, depression, and life dissatisfaction. Stronks et al. (1998) found that exposure to stressors contributed to the increased risk of perceived health problems. Blankenship (1998) examined class and thriving. This perspective focused on the greater propensity for higher-class individuals to thrive in the face of challenge. One example is that at the onset of health adversity higher-class individuals are more likely to take more proactive steps to overcome the situation. Emotional control has been found to vary by class. Davies and Cummings (1994) found that emotionally secure children are better able to regulate their emotions in the face of stress and therefore better cope with daily problems. An examination of social class differences in alcoholism found greater risk of use and lower emotional control amongst unskilled occupations (Hemmingsson et al. 1998). The physiological implications of stress will be examined later.

### **Psychological Domain: Cultural Norms and Habits**

Distinctive behavioral intentions stem from a range of cultural norms that have been found to differ by class. Ogden and Thomas (1999) in examining the impact of social class on weight-concern found that higher-class teenage girls reported higher levels of restrained eating. The higher-class teens placed greater importance on physical appearance, preferring a thinner ideal female body. Bourdieu (1977) also noted the emphasis placed by higher-class individuals on aesthetic physical appearance. Suggested reasons are twofold: 1) aesthetics hold greater reference group appeal amongst higher-class groups, and constitutes a cultural norm inculcated throughout these groups. A publicly visible reference group norm such as this one may strongly influence group acceptance; 2) higher-class individuals hold greater instrumental motivation for maintenance of a youthful, vigorous physical appearance. Higher-class individuals tend to be more acutely aware that healthy appearance is judged positively and contributes to the perception of personal competence. In the fast moving, energetic professional environment of today it may be that visual appearance of being less youthful implies that the individual is slower and less dynamic. The trend towards younger individuals taking faster track career paths that prematurely displaces older managers may well be heightening this instrumental motivation amongst the higher-class groups.

Koivusilta, Rimpelae, and Rimpelae (1999) analyzed differences in health-related lifestyle habits. They found that higher-class position was associated with non-smoking, more regular brushing of teeth, use of seat belts, individual exercise, less television watching, together with lower use of added sugar. These types of behavioral preferences may well be inculcated by parental regulation. Hupkens et al. (1998) cite a range of studies drawn from across western nations indicating that higher-class individuals are likely to eat a more balanced healthier diet. Eating preferences are largely a learned behavior stemming from the role that mothers play in directing what their children eat. The class disparity starts in early-life socialization, where children are inculcated with norms of what, when and how to eat. Higher-class mothers have been found to restrict a greater number of foods, particularly limiting their children's consumption of unhealthy foods such as sweets, soft drinks, chips, and snacking between meals. Lower-class mothers have been found to be much less restrictive, and more likely to give in to their children's taste demands. These same basic food rules have been found to hold across Western Nations, despite ethnic/ cultural distinctions (Hupkens et al. 1998).

Health considerations were found to be more important to higher-class mothers. Consequently, they exhibit greater preparedness to take a stand against their child's many requests. Keeping the child happy is a greater priority for lower-class mothers who preferred acquiescence to their child's daily demands. This provides at least short-term harmony. Higher-class mothers appear more prepared to sacrifice some short-term harmony in order to gain longer-term benefits. Schaninger (1981) proposed that the more limited nutritional concern of lower-class individuals could be largely attributed to an 'instant gratification' orientation. Note, however that other reasons for differing food rules may apply for very poor mothers. De Vault (1991) found that mothers on very tight budgets sought to ensure that no food was wasted, and therefore were less likely to impose foods on their children that were disliked.

Chamberlain and O'Neil (1998) examined variation in norms driving continuance of smoking. Their conclusion was that peer pressure is a more important factor influencing lower-class continuance of smoking. Health, in itself, is more likely to be internalized as an intrinsic cultural norm amongst higher-class individuals. d'Houtard and Field (1984) found that higher-class individuals are more likely to view health and well-being as a desirable end state -- something to strive for. Lower-class individuals were found to be more likely to refer to health as a means-to-an-end. They valued health in so far as it allowed them to work and maintain financial stability. Calnan and Johnson (1985) found that exercise and healthy eating was much more likely to be tightly woven into the lives of higher-class individuals. Lower-class individuals were more likely to describe health in terms of getting through a day without experiencing aches, pains, or other health adversity.

In another area of distinctive cultural norms Kawachi et al. (1997) examined indicators of social capital, including degree of trust, norms of reciprocity, and per capita membership in voluntary organizations in a community. Each of these characteristics was strongly correlated with lower mortality rates. They suggested that these social capital indicators tend to drive development of a more elaborate and inclusive set of health services in a community. Low social capital is associated with greater isolation and reduces the opportunity to form and maintain supportive ties. Level of social support as a health determinate has received attention in recent years. It has been suggested that reduction in health inequality is dependent on interventions that focus on building a richer community structure, one where participation and sharing and caring for others are fostered (Wilkinson 1994). This approach advocates that the core problem behind health inequality lies in a lack of social cohesion within lower-class communities. Berkman (1995) proposed that the reasons why a larger social network is health promoting lay in the ability to provide both a sense of belonging and intimacy, and also the capacity to help people to feel more competent and self-efficacious. Human beings define their sense of self by the reactions of those around them. Strong reinforcing response from others tends to enhance one's sense of worth. Class variation in efficacy and control was identified in the previous section.

### **Psychological Domain: Health Knowledge**

The subject of health is clearly multifaceted and can be complex to understand for the layperson. Healthy behaviors consist of a whole range of practices and the impact on one's body, together with the interactions between each particular practice is not at all straightforward to understand. For example, researching the topic of optimal diet quickly reveals an area of significant complexity. Intuitively, extent of health knowledge should influence health behavior. Ignorance of health information will reduce the chance that one will engage in healthy behaviors. This section examines differences

found between class groups. Studies directly comparing health knowledge between class groups were not found in the literature review conducted for this paper. However, various proposals as to differences in communication and cognitive processing styles were identified.

The first is that lower-class individuals exhibit a more concrete, less abstract mode of thinking (Bourdieu 1984). Durgee (1986, p. 334) described this lower-class characteristic as "an emphasis on description and contents of objects" ... for higher classes the emphasis was on ... "analysis and interrelationships between objects, hierarchical organizations and instrumental connections". The descriptive emphasis displayed by lower-class individuals implies less structured thinking. The emphasis on interrelationships and analysis displayed by the higher classes implies a more organized thought structure and rational bent. Understanding a health topic requires information assimilation. Holt (1998, p.12) found that by virtue of their training and career characteristics, higher-class individuals focus on "synthesis and manipulation of information, to understand and respond to new situations, to innovate rather than follow rote instructions". They are concentrated in knowledge driven fields where change is the norm. Henry (1995) found in higher-class subjects a strong focus on preference for rational logical thinking, and a high value placed on power of the intellect. These higher-class subjects described themselves as inquisitive and interested in new things, seeking to broaden their minds. Halson and Baron (1994) identified distinctive cognitive styles in problem solving and decision making, in that higher-class individuals tend to use a more elaborated, rational-analytic style.

Comprehension of new health information for lower-class individuals will require messages tailored to their specific cognitive styles. Mandelblatt, Yabroff, and Kerner (1999) in a review of barriers to health care found that doctors are often ill prepared to communicate the complexities of medical information to patients in lower-class groups. They attributed this to the limited time that physicians are able to spend with each patient. It may be that lower-class patients require a greater amount of time and effort on the part of their physician in order to ensure adequate comprehension of their condition, and its implications. Gornick (1999) proposed that doctors are often more comfortable interacting with patients who are relatively well-off, like themselves.

It may also be that difference in health behaviors cannot always be attributed to a lack of knowledge. One particular anomaly between health knowledge and unhealthy behavior is the relatively high incidence of smoking found in lower-class groups across the Western World. This does not appear to be a function of ignorance about the dangers of smoking. For example, in Australia where heavy anti-smoking campaigns have run for many years -- including large-size print on the packet and at point of sale "smoking can kill you", "smoking causes lung cancer" -- this lower-class skew persists. The warning signs presented across class groups appear to be just too clear and pervasive for this information to have not been broadly diffused. This suggests that equal knowledge is not enough to eliminate class inequalities.

### **The Psychological Sub-Categories Are Closely Interrelated**

The framework in figure 1 specifies a causal interrelationship between modes of thought, cultural norms, health knowledge, and health-related behavioral intentions. First, reiterating some examples discussed above -- higher level of achievement motivation (mode of thought) influences emphasis placed on visual appearance (cultural norm); a short-term orientation (mode of thought) influences tendency to eat for instant gratification rather than longer-term health (cultural norm); strong sense of self-efficacy (mode of thought) influences an individual to take more proactive healthy-lifestyle steps (cultural norm); goal persistence (mode of thought) facilitates adherence to long-term diet and exercise regimes (cultural norm); conceptual capabilities (mode of thought) influences health information processing ability (and resultant health knowledge); strong peer-driven smoking norms (cultural norm) influence acceptance of health-risk information (and resultant health knowledge).

Second, this is also supported on theoretical grounds if one accepts that each of the four categories can be conceptualized as being types of attitudes -- some more general-level and abstract (notably modes of thought) whilst others are concrete and specific to a particular behavior (notably health-related behavioral intentions). Attitudes have been defined as an overall evaluation of a concept (Fazio 1986). They are associated with a varying degree of cognitive evaluation, affective reaction, and behavioral disposition (Fishbein and Ajzen 1981). An individual's attitude structure should exhibit reasonable consistency across levels of abstraction -- a healthy individual's attitude structure operates as a coherent system (Gutman 1982). This review indicates that systematic class differences in attitudes are present across multiple

domains and levels of abstraction -- from general through to object specific attitudes. This suggests that effecting significant behavior change will involve impacting highly resistant attitudes. In particular, attempts to change behavioral intentions will be unlikely to succeed unless the general-level modes of thought are also changed.

### **Behavioral Constraints: Economic Resources**

Ability to pay for medical care presents an obvious potential barrier to good health (Ayanian et al. 2000; Satter and Brown 2000). In the USA degree of access to services declines with class group (Eisenberg and Power 2000). Lower-class individuals are more likely to forgo treatment for cost reasons. However, what of countries where policy interventions have focussed on elimination of cost barriers? Dunlop et al. (2000) assessed the extent to which the Canadian universal health system had eliminated class barriers in the use of medical services. The goal was to ensure everyone had access to health care services on the basis of need, rather than ability to pay. After adjusting for health needs the study found that lower-class individuals were visiting primary care physicians (PCP) more frequently than other groups. However, they were less likely to visit a specialist. Since referrals through a PCP provide the gateway to the specialist in Canada this presented an inequitable anomaly. There are a number of explanations for these findings: 1) lower-class individuals may be less able to communicate their problems and needs to the PCP; 2) higher-class individuals may more clearly understand the benefit of accessing specialist care and be more proactive in requesting referrals.

Economic barriers may inhibit access to better quality medical care (Fiscella et al. 2000). Public health facilities are generally of a poorer quality than private facilities. These facilities cope with a greater patient volume, which impacts the level of individual patient attention. Since lower-class individuals are less likely to visit a doctor for preventative treatments by the time they do visit a doctor they often have multiple medical problems. For example, cramping in the legs, shortness of breath, obesity and perhaps diabetes may compound circulation problems and heart dysfunction. The combination of limited time for individual patient attention, and multiple medical problems often results in the doctor focusing just on the one most obvious and pressing medical problem, leaving the others to degenerate. Peripheral arterial disease is a good example of one such under-treated degenerative disease.

Another economic barrier involves ability to recover from a medical trauma. Not only do higher-class individuals tend to have access to the best surgeons, doctors, and medical facilities when an emergency strikes, but their ability to recover is enhanced by superior access to therapists and recovery treatments. Higher-class individuals tend to be less affected by extended illness, since they usually have greater job security and financial resources to fall back on. Lower-class individuals are often more severely affected by onset of illness through job insecurity, lack of benefits and limited financial reserves. This makes physical recovery and return to normal life a much more difficult process for these people. Another economic barrier lies in ability to pay for preferred prescription medicines. Prescription compliance is weakest amongst the lower-class groups.

Whilst economic disadvantage constitutes a barrier for quality medical care, the role of 'inability to pay' in explaining the health differences amongst young adults is less clear. In the young adult phase of life need for substantive medical care has usually not arisen, yet differences in health are already evident. For example, the finding that greater obesity amongst lower-class groups holds regardless of the age sub-set that is compared. One could argue that the key reason lies in economic barriers to enjoyment of healthy diet and exercise. However, it can also be argued that the most nutritious way to eat (e.g. vegetables and grain staples) is also the cheapest way to eat, and that exercise such as regular running or walking actually costs nothing (Roper Starch 2001). Ability to pay for food and other basics does come into play for those living in the bottom income group (Troutt 1993). This does not, however, explain differences in health behavior between upper and middle-income groups. Irrational allocation of scarce financial resources is also noteworthy in that they further reduce ability to pay for nutritious food. These include the high proportion of disposable income allocated by low-income households to purchases such as cigarettes, alcohol, and gambling activities. The point is that for all but the extremely poor there is often the possibility to reallocate even limited disposable income from these health-inhibiting activities, towards more healthful spending -- if the conscious determination is made.

### **Behavioral Constraints: Situation Effects**

This section discusses barriers to accessing facilities due to transportation or time constraints. These effects are often a function of economic limitations. Medical facilities have been mentioned. Another, is likelihood that lower-class children

have limited access to exercise facilities, parks, football fields, running tracks, and often are confined to smaller school playgrounds. This contributes to the obesity incidence in lower-class children. Higher-class children are more likely to engage in a greater range of organized physical activities. An environment in which there is a greater range of accessible recreational facilities instills diversity and regularity of habitual physical activity. Organized child activities often require parental involvement to facilitate participation. Higher-class parents are more closely involved in encouraging such activities (Bourdieu 1984; DiMaggio 1994).

Taylor, Repetti, and Seeman (1997) proposed that degree of chronic stress is influenced by both the quality and ease of access to the full range of basic community facilities. They cited evidence that higher-class communities typically have more convenient access to high-quality housing, shops, banks, health-care services and transportation. Lower-class individuals experience greater stress due to burden of effort required in addressing the basic living tasks. Lack of convenient transportation may act as a disincentive to visit health-related facilities, or engage in extensive recreational activities. These situation effects are largely a function of ability to pay, but also are due to the level of political influence that the particular community holds in garnering fair share of public resources. Communities populated with individuals exhibiting a lower sense of self-efficacy may lack the drive to mobilize community improvement actions. This contributes to a cycle of further run-down in community facilities, and intensified disadvantage.

### **A Pathway Influencing Extent of Behavioral Constraints**

Note the connection depicted in the figure 1 between the psychological domain and behavioral constraints. A number of modes of thought facilitate acquisition of economic resources. Recapping several examples described above: higher achievement motivation drives one towards realization of career goals; a longer-term time orientation promotes goal setting, planning and perseverance in goal achievement -- goals spanning financial, business, and career aspirations; strong self-efficacy encourages sense of possibility and loftier goal setting; abstract cognitive capabilities facilitate goal achievement through superior problem solving. Cultural norms also influence acquisition of economic resources. Cultural norms constitutes a form of 'capital' in that to be accepted by, and develop a social network within an advantaged social group one must exhibit appropriate cultural norms (Bourdieu 1977, 1984). Access to an advantaged social network provides economic opportunities such as career contacts, business leads, and educational opportunities. Mixing within advantaged social networks also acts to foster the advantageous modes of thought discussed above.

### **Physical Influences: Genetics**

The main avenue for examining genetic effect has been the study of identical twins reared apart. In the Minnesota Study of Twins Reared Apart (Tellegen et al. 1994) several hundred such twins were studied. This research found that identical twins reared apart are closely alike to those reared together in terms of a range of psychological dispositions. Lifestyle similarities were also identified. Some examples were quite extraordinary. For example, the case of separated twins marrying the same number of times, to women with the same name, and not just having similar drinking and smoking habits, but consuming the same brands. Ellis (1994) examined the relation between genetics, social class, and health. He drew together an exhaustive literature review pointing to a heritable effect of social class on health. Lichtenstein et al. (1992) in a study comparing separate samples of twins reared together, and apart, examined the effects of socioeconomic status and health. They concluded that genes are at least as important as social influence and childhood experience in explaining health inequality. The causal pathways are not fully understood, but appear multifaceted with the contribution of genetics occurring in concert with environmental influences. The genetic contribution may well act in a dispositional fashion in that socialization experiences and actual health behaviors mediate extent of genetic effect.

A range of findings link genetically influenced psychological traits with class and health. Ellis (1994) reviewed evidence of correlation between dominance traits and life span suggesting several contributing reasons. These included the effect of dominance on acquisition of economic resources that enable fulfillment of nutritional and medical needs, together with suitable physical living conditions. Other reasons related to a number of effects of dominance traits on stress levels. Whilst a direct link between dominance and disease has not been identified, evidence from two sources links inheritance to both health and social class. The first source of evidence is that many core personality traits may have a heritable component (Hamer and Copeland 1998). One such trait is achievement motivation, which is closely associated with desire for dominance of one's environment. As noted in earlier discussion evidence has accumulated that achievement motivation also varies systematically by social class.

Hamer and Copeland also noted the genetic influence on novelty seeking. Earlier discussion pointed to evidence that higher-class individuals are more open to change and likely to embrace the unfamiliar. Coupled with a higher level of achievement motivation is a heightened tendency to look for the opportunities present in a fast changing environment, that will facilitate accelerated personal advancement. If these dominance traits were differentially distributed through the population, then they would act on health through inequitable access to material resources. Dominance tendencies may also dampen adverse physiological reaction to stressful situations. For example, the same adverse situation may be more stressful for a lower-class individual due to heightened stress response to extraordinary events. Limited material and experiential resources may compound the effect of stressful situations.

Other genetic influences that are at least indirectly linked to class and health outcomes may include heritability of various aspects of intelligence, including memory capacity, cognitive mapping capability, and processing speed (Ellis 1994; Hamer and Copeland 1998; Herrnstein and Murray 1994, Ruzgis and Grigorenko 1994). If these characteristics vary by class, then they would represent an advantageous resource for higher-class individuals. Superior cognitive capability may also act to enhance self-efficacy.

### **Physical Influences: Environmental Conditions**

Very often lower-class groups are clustered in geographic regions of greater environmental degradation. Lower-class communities are more likely to be located in old industrial areas exhibiting effects of air pollution and other waste materials, such as lead paint, asbestos, and other chemical residues (Robert 1999). In the USA a clear gradient between blood-lead levels and class has been found (Pamuk 1998). These risky exposures extend across less healthy housing, work places, and recreational options. Insufficient heat and damp housing can contribute to health problems in childhood such as allergies, asthma, and respiratory problems. Cockroaches, rats and mice can also exacerbate health problems in lower-class areas (Bolig, Borkowski, and Brandenberger 1999). Upwardly mobile individuals tend to leave these degraded regions if they can. When you read about a region where high rates of toxicity and cancer are evident, you almost always find out that it is an area of low socioeconomic advantage. Housing developments for lower-class residents are more likely to be constructed on reclaimed industrial or waste sites. It is rare for upper-class housing to be built in such locations. Occupational injury and fatality rates are higher for lower-class workers (Cubbin, LeClere, and Smith 2000; National Institute of Occupational Safety and Health 2000).

### **Physical Influences: Physiological Stress**

A body of evidence is accumulating pointing to direct physiological effect of chronic stress on health (McEwen and Seeman 1999). Stress has been found to impact the immune and the cardiovascular systems, resulting in more rapid aging of the body (Chrousos et al. 1995; Lovallo 1997). Baum, Garofalo, and Yali (1999, p.13) concluded, "chronic stress may capture much of the variance in health and social outcomes". Studies of non-human primate communities have found that low social status gives rise to a range of physiological conditions including higher cholesterol counts, clogging of the arteries, greater obesity, and behavioral depression. Brunner (1997) and Kristenson et al. (1998) have found similar biological risk due to low social status in humans. Whilst the biological pathways between stress and physiological outcomes are becoming clearer, explanations for the greater stress felt by lower-class individuals is less understood.

One suggestion is that the awareness of disadvantage leads to a frustration, which results in a build-up of stress over time. Effects of stressful circumstances are moderated by sense of control (Karasek and Theorell 1990; Shain 1999). So, whilst professionals often experience high degrees of job stress their relatively higher levels of autonomy in the workplace reduces the detrimental physiological effects of that stress (Fotinos-Ventouratos and Cooper 1998). Lower-class individuals with greater job dissatisfaction, low autonomy, and job security face heightened detrimental stress effects. Bandura (1997) noted that harmful physiological effects of cognitively stressful situations is negated when the individual has the problem solving skills to control, or overcome the situation. Superior problem solving skills of higher-class individuals have been raised earlier. Bandura also proposed that the experience of confronting and overcoming problems help build a stronger sense of efficacy. Higher-class individuals tend to be more likely to confront stressful challenges, viewing them as opportunities. They are more comfortable with change in their lives. It follows that this tendency for higher-class individuals to place themselves in stressful situations acts to further enhance their sense of efficacy and increase their protection from physiological effects of stress. At the same time this confrontation with challenge presents

opportunity to build advantageous economic resources. The influence of self-efficacy on both physiological stress and on economic wellbeing highlights the multiple, yet indirect, effects of abstract modes of thought on health.

Another well-studied phenomenon is the effect of social isolation on physical health. Less socially integrated individuals are more likely to suffer from poor health (Berkman 1995; Cohen et al. 1997). Similarities have been found in the biological effects of lower social status and social isolation (Sapolsky, Alberts, and Altmann 1997). These two variables may go together in that lower status may promote withdrawal from social activity. Scheff (1990) described a deference-emotion system in which on-going social comparison gives rise to feelings of inferiority and inadequacy. Social class can be seen as an ordering of competence. Long et al. (1982) found that transient blood pressure of interviewees varies depending upon whether higher or lower status persons interview them. Scheff highlighted the role of shame as a primary social emotion, generated by the constant monitoring of the self in relation to others. The most competent are at the top and have used this competence to accumulate an elaborate set of material, cultural and social resources. It should be noted that this deference-emotion system is not a conscious experience, but rather sits in the background of daily life. This was the focus of the book by Sennett and Cobb (1973) "The Hidden Injuries of Class". Lower self-esteem is often expressed as frustration, resignation, or withdrawal.

### **Pathways between Physical Influences and other Resource Types**

Figure 1 specifies several influence pathways between physical influences and the other resource categories. Summing up: The environmental conditions that one lives and works within is largely governed by level of economic resources.

Affluent individuals tend to reside in a more desirable physical environment.

Degraded environmental conditions have the potential to influence the psychological domain in terms of stress and negative outlook -- by virtue of the depressing circumstances.

The possible connection between genetic heritability and the psychological domain was raised. Particular abstract modes of thought may have genetic origins. It was noted, however, that this proposition is subject to conjecture.

Finally, the influence of the psychological domain on physiological stress effects was noted. Specifically, high stress accompanied by limited sense of control has a deleterious physical impact.

## **AN INEQUALITY IMPERVIOUS TO CHANGE?**

There is of course a large, but often fragmented effort by private organizations and government authorities to positively influence public health (see for example Cameron et al. 2000; Goldberg, Fishbein, and Middlestadt 1997). These range from anti-smoking, condom use, drug use, alcohol moderation, to preventative screenings such as mammography, dietary compliance, prenatal care, organ donations, and vaccinations. In the public health arena whilst there have been some notable successes it could be said that most programs have recorded at best sporadic success. For example, in the case of heart disease a meta-analysis of programs such as the Minnesota Heart Health Program, concluded that "multiple risk factor interventions ... were ineffective in achieving reductions in total mortality or mortality from cardiovascular disease" (Ebrahim and Davey Smith 1997, p. 1671). Loughlin et al. (1999) reported mixed results for community-based cardiovascular programs targeting lower-class communities. Pierce et al. (1998) discussed the difficulty in identifying long term effects of state tobacco control programs. For example, they found that the initial effects of the well-publicized California anti-smoking program did not persist. The same mixed conclusions can be made about the range of broader community-based programs designed to reinvigorate disadvantaged neighborhoods. Schorr (1998, p. xiii) noted "successful programs exist, but they have in the main, been small and scarce ... the small successes (are) only rarely sustained or expanded".

Regardless of the specific strengths and weaknesses of each of these programs the fact remains that the inequitable health differential between class groups has been resistant to change (Lee 1999; Pamuk et al. 1998).

## OPTIONS FOR CHANGE

This section evaluates options for change, but highlights limitations and obstacles for each path. The framework developed in this paper specifies two direct influences on health outcomes -- the physical influences and healthful behaviors. We know, however, that the psychological domain and the extent of behavioral constraints impact both physical influences and healthful behavior. For example, cognitive resources can reduce effects of physiological stress, and economic resources can alleviate degraded environment. The framework also suggests that healthful behaviors are due to more than just inability to pay. A mix of psychological characteristics combines to form distinctive behavioral intentions. With these issues in mind let's focus on the options involving economic resources and the psychological domain.

**Removing Behavioral Constraints:** There is a range of possibilities to reduce the detrimental effects of the behavioral constraints described above. Bolstering level of economic resources via measures such as income transfers, raising minimum wage levels, provision of an array of social service benefits, together with economic policy to reduce unemployment levels have been topics subject to sustained public debate. This has been in terms of desirability, direction and mode of implementation. Discussion is often associated with a spectrum of politically charged ideology. The cumulative effectiveness of programs in the last twenty years in the USA, designed to lift the economic lot of lower-class groups is a debatable topic. We do know that the proportion living below the official poverty line has not changed significantly; that a greater proportion of children live in households below the poverty level; that real income has remained flat for all but the top 40% of households; and that the disparity in income has increased to the point where the top 20% of households earn over thirteen times that of the bottom 20% (Pamuk et al. 1998; U.S. Census Bureau 1999). The real growth in income over the period has been concentrated in the top 20% of households. Effecting change in share of economic resources has proven to be complex in terms of identifying mix of economic policy, nature of social service package and political will.

Whilst it seems reasonable that removal of economic constraints allowing quality medical care and access to other health facilities will protect health, the effect size is not so clear. Mayer (1997) summed up the issue in the title "What Money Can't Buy". She estimated the social effects of doubling the income of low-income families. In practice, such redistribution would represent a historically huge increase. However, Mayer concluded that this measure on its own would accrue only modest effects. This points to the strong influence of non-economic characteristics -- the psychological domain -- in influencing health behaviors. Note also the earlier discussion detailing ways that motivational tendencies stemming from one's mix of abstract modes of thought facilitate acquisition of economic resources.

**Manipulating the Psychological Domain:** Social marketing interventions have often focussed on attitude change strategies designed to impact behavioral intentions. Many of these health-related attitudes are strongly held. As already noted the overall effects have been at best localized and transient. Attitude change strategies broadly involve manipulating health beliefs, perceived consequences, group norms, or efficacy beliefs. Since these interventions are usually focused on a single type of behavior, it is unlikely that they can effectively bring change to the total pattern of lifestyle behaviors necessary to substantially affect overall health. Another fundamental difficulty is that attitudes operate as systems ultimately driven by the abstract modes of thought. A program that does not impact abstract modes of thought will result in weak attitude shift.

Another complicating factor noted earlier is that these abstract modes of thought are primarily molded in the childhood experience. Once formed they tend to be particularly resistant to change. Given such resistance Durgee (1986) proposed that a change program targeting lower-class groups must operate within the exhibited mindset. For example, if a present-orientation dominates, then the targeted behavior change should focus on short-term benefits of the behavior. If thinking tends to be concrete rather than abstract, then specific concrete benefits should be emphasized -- as opposed to more global benefits. However, successful examples employing Durgee's approach are lacking.

This paper points to the pivotal role of a small mix of abstract modes of thought in influencing specific behavioral intentions, effects of physiological stress, and acquisition of economic resources. These modes of thought equip

individuals in higher-class groups with superior resources to enhance their quality of life. Any serious attempt to effect substantial long-term shifts in health inequality must include propagating these resources across the population.

### **Suggesting a Long-term Focus**

This is clearly not an area of easy solutions and will require taking a long-term perspective. A movement towards sustained health equality will necessitate fundamental social remodeling. Consequently, it will require a level of political will that is currently not even remotely evident. This particularly applies to any substantial economic resource reallocation. In the USA the pervading popular perception is that equal opportunity is available to anyone prepared to put in sufficient effort. There is skepticism of adults receiving social security support -- that they are responsible for their own poor situation. They are undeserving of support, past the basics of sustenance and shelter. There is little public understanding of the more intangible resource inequities described throughout this paper. Lack of political will derives from this broadly held public opinion.

How can we even begin the scale of public policy intervention required without significant political will? This question suggests that the first steps lie in public education. I argue that involvement in such a project may be the greatest single contribution that social marketers can make at this stage of the change process. It would harness marketer's unique expertise in persuasive mass communication. Successfully mobilizing public opinion would require a communication program unprecedented in terms of both scale and complexity. The goal would be to raise the salience of the issue, educate in the face complex phenomena, and break down entrenched attitudes. It would require substantial resources. With these difficulties in mind Tarlov (1999) suggested that such a public opinion program should employ a limited focus. This focus should concentrate in the area where public sentiment is most easily fostered -- inequities in child development. It is the area where the public is least likely to place blame on the disadvantaged -- children. There is limited public appreciation of the extent of inequitable conditions that children are innocently born into. It could be described as the softest point for influencing public opinion. Importantly, the childhood period also presents the greatest opportunity given it is the most malleable life-stage for fostering cognitive capabilities.

Once weight of public opinion and political will is fostered public policy interventions should take a long-term view and focus resources on equitable child development. At the very minimum this effort should aim to propagate advantageous modes of thought through intervention in five areas: (a) impact the prenatal practices of the mother to foster behavior that will result in healthy conception; (b) ensure the early preschool years foster sense of security and stimulating environment for cognitive and emotional development; (c) ensure healthy physical development; (d) enhance the capability of the education system to realize cognitive and motivational potential; (e) encourage a home environment that works in synergy with the objectives of the educational system. Small-scale programs have had success in impacting each of these five areas (see Schorr 1998 for a range of case examples). The unresolved challenge is to scale this mix of learnings to a national level.

The greatest single point of leverage for public intervention is arguably via the educational experience. There has been much work put into developing teaching and learning methods designed to instill suitable motivational dispositions and cognitive skills (e.g. see Alderman 1999). Policy-makers should move to support application of these leanings in a manner that has much broader impact than is presently in place. There is substantial research pointing to the ability of quality education to develop cognitive capabilities such as enhanced logical thinking, open-mindedness, problem solving, together with motivations such as self-directedness, self-efficacy and orientation towards hard work (see Ross and Mirowsky 1999 for review). The process of learning builds the skills and confidence in problem solving. This confidence allows one to confront new problems with a heightened sense of personal control. This is a main reason why high levels of education are associated with a sense of personal control. Sense of control is thus a learned expectation for which policy-makers should purposely aim to instill in less advantaged class groups.

Ensuring that the home environment is synergistic with the educational experience presents a greater challenge since parents most directly control this realm. The home experience of higher-class children tends to be more conducive to intellectual development (Duncan and Brooks-Gunn 1997). Disparity in modes of thought is partly due to level of cognitive stimulation in the home (Guo and Harris 2000), together with differing parental styles (Mayer 1997). A change program must include influencing parental style and encouraging introduction of stimulating educational activities within

the home. Parent education will play a role. The education system must be mandated to take a much more proactive stance in engaging parents and drawing them into the process. Indeed, the education system must reach in earlier and become much more involved in the out-of-school life of students.

### **Gradational Health and Gradational Resources**

At the outset of this paper it was noted that the health inequality is not just a function of poverty versus affluence. Decline in health outcomes is observed with each successive group. A similar gradation applies to each of the main resource types discussed above. As well as gradation in economic resources such as income, gradation also applies to abstract modes of thought and experience of felt stress. In a collapsed three class system (Goldthorpe, Llewellyn, and Payne 1987) employed by Henry (2000) the intermediate class group exhibited six abstract modes of thought that each fell in between the upper (professional) and lower (working class) groups. For example, people in the intermediate group exhibited group mean scores for achievement motivation that fell in between the professional and working groups. Stansfeld et al. (1998) found that felt stress heightened, and control beliefs declined in a gradational manner when comparing each successive class from higher to lower.

Given earlier discussion the gradational distribution of each these main resource categories reinforces the pivotal role of the abstract modes of thought. These cognitive capabilities and dispositions are not phenomena that are either present or not present in an individual. They are incremental properties that can be developed with early intervention. Our challenge is to ensure that each individual's potential is realized. Incremental flow-on effects will accrue in the areas of health, mental well-being, and also economic advantage.

### **Limitations**

The discussion of class characteristics was primarily framed in terms of a higher versus lower class comparison. Given the specification that class groups exhibit subculture characteristics, this suggests that there are a number of groups -- not just an advantaged one and a disadvantaged one. One would reasonably ask what are the characteristics of class groups with a middle level of advantage? How many class groups are there? What proportion of the population fall into each group?

The difficulty in drawing together the diverse literature for this paper has been the lack of a commonly agreed classification system. I counted over a dozen systems. They varied in terms of the number of groups and method of classification. Specificity of definition also varied. This precluded the possibility for tabulating directly comparable study-by-study results. Dominquez and Page (1981), Coleman (1983), and Blackburn (1998) have also raised these difficulties. Comparability issues have driven the recent ESOMAR (1997) initiative to promote a Standardized International Social Grade System. These difficulties do not, however, negate the higher/ lower comparison. The classification alternatives share a consistent hierarchical ranking in terms of each of the main resource types.

Breen and Rottman (1995, p. 454) noted that "social class often appears to be a muddled and frequently imprecise concept". Overall, this 'muddled' perception appears to be a major factor in dissuading marketing academics from pursuing a research focus in this field. However, the multiplicity of distinctive characteristics detailed throughout this paper reinforces the fundamental impact that social class continues to hold over our lives. Whilst I doubt this paper clears up the mixed perceptions, I hope that it raises interest in social class as a research topic. If interest can't be raised within this sphere of readership, then our ability to impact public sentiment will be limited.

## **REFERENCES**

- Acheson, Donald. 1998. *Inequalities in Health: Report*. London, Her Majesties Stationary Office: Independent Inquiry, with permission of Department of Health.
- Aday, Lu Ann. 1993. *At Risk in America: The Health and Health Care Needs of Vulnerable Populations in the United States*. San Francisco: Jossey-Bass.

- Adler, Nancy and Joan Ostrove. 1999. "Socioeconomic Status and Health: What we Know and What We Don't." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: The New York Academy of Sciences, 3-15.
- Alderman, Kay. 1999. *Motivation for Achievement: Possibilities for Teaching and Learning*. New Jersey: Lawrence Erlbaum.
- Ajzen, Icek. 1985. *Attitudes, Personality, and Behavior*. Chicago: Dorsey Press.
- Argyle, Michael. 1994. *The Psychology of Social Class*. London: Routledge.
- Aronson, Elliot. 1976. *The Social Animal*. San Francisco: Freeman.
- Ayanian, John, Joel Weissman, Eric Schneider, Jack Ginsburg, and Alan Zaslavsky. 2000. "Unmet Health Needs of Uninsured Adults in the United States." *Journal of the American Medical Association* 284 (16): 2061-2069.
- Bandura, Albert. 1997. *Self-efficacy: The Exercise of Control*. New York: W. H. Freeman.
- Banaji, Makzarin and Deborah Prentice. 1994. "Self in Social Context." *Annual Review of Psychology* 45: 297-331.
- Baum, Andrew, J.P. Garofalo, and Ann Marie Yali. 1999. "Socioeconomic Status and Chronic Stress: Does Stress Account for SES Effects on Health?" In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwan, and Judith Stewart. New York: New York Academy of Sciences, 131-144.
- Baxter, Janeen, Michael Emison, and John Western. 1991. *Class Analysis and Contemporary Australia*. Melbourne: Macmillan.
- Beck, Kenneth and Adrian Lund. 1981. "The Effects of Health Threat Seriousness and Personal Efficacy Upon Intentions and Behavior." *Journal of Applied Social Psychology* 11: 401-415.
- Berkman, Lisa. 1995. "The Role of Social Relations in Health Promotion." *Psychosomatic Research* 57: 245-254.
- Bernstein, Basil. 1977. *Class, Codes, and Control*. London: Routledge & Keegan Paul.
- Blackburn, R.M. 1998. "A New System of Classes: But What Are They and Do We Need Them?" *Work Employment & Society* 12 (4). 735-742.
- Blankenship, Kim. 1998. "A Race, Class, and Gender Analysis of Thriving." *Journal of Social Issues* 54 (2): 393-406.
- Bolig, Erika, John Borkowski, and Jay Brandenberger. 1999. "Poverty and Health Across the Life Span." In *Life-Span Perspectives on Health and Illness*. Eds. Thomas Whiteman, Thomas Merluzzi, and Robert White. New Jersey: Lawrence Erlbaum Assoc.
- Botschen, Gunther and Andrea Hemetsberger. 1998. "Diagnosing Means-End Structures to Determine the Degree of Potential Marketing Program Standardization." *Journal of Business Research* 42: 151-159.
- Bourdieu, Pierre. 1977. "Cultural Reproduction and Social Reproduction." In *Power and Ideology in Education*. Eds. J. Karabel and A. Halsey. Oxford: Oxford University Press.
- Bourdieu, Pierre. 1984. *Distinction: A Social Critique of the Judgement of Taste*. New York: Routledge.

- Breen, Richard and David Rottman. 1995. "Class Analysis and Class Theory." *Sociology* 29 (3): 453-473.
- Brunner, Eric. 1997. "Stress and the Biology of Inequality." *British Medical Journal* 314: 1472-1476.
- Calnan, Michael and Barbara Johnson. 1985. "Health, Health Risks and Inequality: An Exploratory Study of Women's Perceptions." *Sociology of Health and Illness* 7: 55-75.
- Cameron, Roy, Rosemary Walker, Myrna Gough, and Paul McDonald. 2000. "Linking Public Health Science and Practice: An Example From the Canadian Heart Health Initiative." *Leadership in Health Services* 13 (4): i-vii.
- Chamberlain, Kerry and Damian O'Neill. 1998. "Understanding Social Class Differences in Health: A Qualitative Analysis of Smokers' Health Beliefs." *Psychology and Health* 13: 1105-1119.
- Chrousos, George, Richard McCarty, Karel Pacak, Giovanni Cizza, Esther Sternberg, Philip Gold, and Richard Kvetnansky. 1995. "Stress: Basic Mechanisms and Clinical Implications." *Annals of the New York Academy of Sciences* 771: 1-12.
- Cohen, Sheldon, William Doyle, David Skoner, Bruce Rabin, and Jack Gwaltney. 1997. "Social Ties and Susceptibility to the Common Cold." *Journal of the American Medical Association* 277: 1940-1944.
- Coleman, Richard. 1983. "The Continuing Significance of Social Class to Marketing." *Journal of Consumer Research* 10 (December): 265-280.
- Connell, Robert. 1977. *Ruling Class, Ruling Culture*. Cambridge: Cambridge University Press.
- Crompton, Rosemary. 1998. *Class and Stratification*. Cambridge: Polity Press.
- Cubbin, Catherine, Felicia LeClere, and Gordon Smith. 2000. "Socioeconomic Status and the Occurrence of Fatal and Nonfatal Injury in the United States." *American Journal of Public Health* 90 (1): 70-77.
- Currence, Cynthia. 1997. "Demographic and Lifestyle Data: A Practical Application to Stimulating Compliance with Mammography Guidelines Amongst Poor Women." In *Social Marketing: Theoretical and Practical Perspectives*. Eds. Marvin Goldberg, Martin Fishbein, and Susan Middlestadt. New Jersey: Lawrence Erlbaum Assoc., 111-122.
- d'Houtard, A. and Mark Field. 1984. "The Image of Health: Variations in Perceptions by Social Class in the French Population." *Sociology of Health and Illness* 6: 30-60.
- Daniel, Ann. 1983. *Power, Privilege and Prestige*. Melbourne: Longman Cheshire.
- DiMaggio, Paul. 1994. "Social Stratification, Life-Style, and Social Cognition." In *Social Stratification: Class, Race, and Gender*. Ed. David Grubky. Boulder, CO: Westview, 458-468.
- DiMaggio, Paul and John Mohr. 1985. "Cultural Capital, Educational Attainment, and Marital Selection." *American Journal of Sociology* 90: 1231-1261.
- Dvaidhizar, Ruth, Ruth Shearer, and JoLynn Reimer. 2000. "The New Face of Poverty in Canada – Implications for Health Care Professionals." *Leadership in Health Services* 13 (3): x-xiii.
- Davies, Peter and E. Mark Cummings. 1994. "Marital Conflict and Child Adjustment: An Emotional Security Hypothesis." *Psychological Bulletin* 116: 387-411.

- DeVault, Marjorie. 1991. *Feeding the Family: The Social Organization of Caring as Gendered Work*. Chicago: University of Chicago Press.
- Dominquez, Louise and Albert Page. 1981. "Stratification in Consumer Behavior Research: A Re-examination." *Academy of Marketing Science* 9 (3): 250-271.
- Duncan, Greg and Jeanne Brooks-Gunn, eds. 1997. *Consequences of Growing up Poor*. New York: Russell Sage Foundation.
- Dunlop, Sheryl, Peter Coyte, and Warren McIsaac. 2000. "Socio-economic Status and the Utilisation of Physicians Services: Results from the Canadian National Population Health Survey." *Social Science and Medicine* 51: 123-133.
- Durgee, Jeffrey. 1986. "How Consumer Sub-cultures Code Reality: A Look at Some Code Types." In *Advances in Consumer Research*. Vol. 13. Ed. Richard Lutz. Association of Consumer Research, 332-337.
- Ebrahim, Shah and George Davey Smith. 1997. "Systematic Review of Randomised Controlled Trials of Multiple Risk Factor Interventions for Preventing Coronary Artery Disease." *British Medical Journal* 314: 1666-1674.
- Eisenberg, John and Elaine Power. 2000. "Transforming Insurance Coverage into Quality Health Care." *Journal of the American Medical Association* 284 (16): 2100-2107.
- Ellis, Lee. 1994. "Social Status and Health in Humans: The Nature of the Relationship and Its Possible Causes." In *Social Stratification and Socioeconomic Inequality: Reproductive and Interpersonal Aspects of Dominance and Status* (Vol. 2). Ed. Lee Ellis. Connecticut: Praeger, 123-144.
- ESOMAR. 1997. *The Harmonisation of Socio-demographics: The Development of the ESOMAR European Social Grade*. Amsterdam: European Society for Opinion and Marketing Research.
- Fazio, Russell. 1986. "How do Attitudes Guide Behavior?" In *Handbook of Motivation and Cognition: Foundations of Social Behavior*. Eds. R. Sorrentino and E. Higgins. New York: Guilford Press, 204-243.
- Fiscella, Kevin and Peter Franks. 1997. "Does Psychological Distress Contribute to Racial and Socioeconomic Disparities in Mortality." *Social Science & Medicine* 45 (12): 1805-1809.
- Fiscella, Kevin, Peter Franks, Marthe Gold, and Carolyn Clancy. 2000. "Inequality in Quality: Addressing Socioeconomic, Racial, and Ethnic Disparities in Health Care." *Journal of the American Medical Association* 283 (19): 2579-2584.
- Fishbein, Martin, and Icek Ajzen. 1975. *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley.
- Fisher, James. 1987. "Social Class and Consumer Behavior: The Relevance of Class and Status." In *Advances in Consumer Research*. Vol. 14. Eds. Melanie Wallendorf and Paul Anderson. Association of Consumer Research, 492-496.
- Forgas, George. 1985. *Interpersonal Behaviour: The Psychology of Social Interaction*. Sydney: Maxwell Macmillan.
- Forsyth, Donelson. 1999. *Group Dynamics*. Belmont, CA: Wadsworth.
- Fotinos-Ventouratos, Ritsa and Cary Cooper. 1998. "Social Class Differences and Occupational Stress." *International Journal of Stress Management* 5 (4): 211-222.

- Glover, John and Tony Woollacott. 1992. *A Social Health Atlas of Australia*. Canberra: Australian Bureau of Statistics.
- Goldberg, Marvin, Martin Fishbein, and Susan Middlestadt. Eds. 1997. *Social Marketing: Theoretical and Practical Perspectives*. New Jersey: Lawrence Erlbaum Associates.
- Goldthorpe, John and Gordon Marshall. 1992. "The Promising Future of Class Analysis: A Response to Recent Critiques." *Sociology* 26 (3): 381-400.
- Goldthorpe, John and Clive Payne. 1986. "Trends in Intergenerational Class Mobility in England and Wales." *Sociology* 20 (1): 1-24.
- Goldthorpe, John, Catriona Llewellyn, and Clive Payne. 1987. *Social Mobility and Class Structure in Modern Britain*. Oxford: Clarendon Press.
- Gornick, Marian. 1999. "The Association of Race/Socioeconomic Status and Use of Medicare Services: A Little-Known Failure in Access to Care." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: New York Academy of Sciences, 497-501.
- Guo, Guang and Kathleen Mullan Harris. 2000. "The Mechanisms Mediating the Effects of Poverty on Children's Intellectual Development." *Demography* 37 (4): 431-447.
- Gutman, Jonathan. 1982. "A Means-end Chain Model Based on Consumer Categorization Processes." *Journal of Marketing* 46 (Spring): 60-72.
- Haan, Mary, George Kaplan, and Terry Camacho. 1987. "Poverty and Health: Prospective Evidence From the Alameda County Study." *American Journal of Epidemiology* 125: 989-998.
- Halson, Nick and Jonathan Baron. 1994. "Intelligence, Personality and Prudence." In *Personality and Intelligence*. Eds. Robert Sternberg and Patricia Ruzgis. Cambridge: Cambridge University Press, 32-60.
- Hamer, Dean and Peter Copeland. 1998. *Living With Our Genes*. New York: Anchor Doubleday.
- Harpham, Trudy and Carolyn Stephens. 1991. "Urbanization And Health in Developing Countries." *World Health Statistical Quarterly* 44: 62-69.
- Hemmingsson, Tomas, Ingvar Lunberg, Finn Diderichsen, and Peter Allebeck. 1998. "Explanations of Social Class Differences in Alcoholism Among Young Men." *Social Science and Medicine* 47 (10): 1399-1405.
- Henry, Paul. 1998. "An Examination of Subculture Characteristics of Social Class Groups in Contemporary Society." Doctoral dissertation, Marketing Department, University of New South Wales.
- Henry, Paul. 2000. "Modes of Thought that Vary Systematically with both Social Class and Age." *Psychology & Marketing* 17 (5): 421-440.
- Henry, Paul and Margaret Craig-Leas. 1995. "Distinctive World Views of Social Classes." In *Proceedings of the Seventh Bi-annual World Marketing Congress*. Vol. 1. Eds. Ken Grant and Ian Walker. Academy of Marketing Science.
- Herrnstein, Richard and Charles Murray. 1994. *The Bell Curve: Intelligence and Class Structure in American Life*. New York: Free Press.

- Hess, Robert. 1970. "The Transmission of Cognitive Strategies in Poor Families: The Socialization of Apathy and Under-Achievement." In *Psychological Factors in Poverty*. Ed. Vernon Allen. Chicago: Markham.
- Hirdes, John and William Forbes. 1992. "The Importance of Social Relationships, Socioeconomic Status and Health Practices With Respect to Mortality Amongst Ontario Males." *Journal of Clinical Epidemiology* 7 (2): 75-125.
- Holt, Douglas. 1997. "Poststructuralist Lifestyle Analysis: Conceptualizing the Social Patterning of Consumption in Postmodernity." *Journal of Consumer Research* 23 (March): 326-350.
- Holt, Douglas. 1998. "Does Cultural Capital Structure American Consumption?" *Journal of Consumer Research* 25: 1-25.
- Homer, Pamela and Lynne Kahle. 1988. "A Structural Equation Test of the Value-Attitude-Behavior Hierarchy." *Journal of Personality and Social Psychology* 54 (4): 638-646.
- Hupkens, Christianne, Ronald Knibbe, Anneke van Otterloo, and Maria Drop. 1998. "Class Differences in the Food Rules Mothers Impose on Their Children: A Cross National Study." *Social Science & Medicine* 47 (9): 1331-1339.
- Institute for the Future. 2000. *Health and Health Care 2010: The Forecast, The Challenge*. San Francisco: Jossey-Bass.
- Jones, Frank and Phillip Davis. 1988. "Class Structuration and Patterns of Social Closure in Australia and New Zealand." *Sociology* 22: 271-291.
- Karasek, Robert and Tores Theorell. 1990. *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life*. New York: Basic Books.
- Kawachi, Ichiro, Bruce Kennedy, Kimberly Lochner, and Deborah Prothrow-Smith. 1997. "Social Capital, Income Inequality, and Mortality." *American Journal of Public Health* 87: 1491-1498.
- Kawachi, Ichiro, Richard Wilkinson, and Bruce Kennedy. 1999. "Introduction: Income Inequality and Health: International Evidence." In *The Society and Population Health Reader: Income Inequality and Health*. Eds. Ichiro Kawachi, Bruce Kennedy and Richard Wilkinson. New York: The New York Press, xi-xxxv.
- Kessler, Ronald. 1982. "A Disaggregation of the Relationship Between Socioeconomic Status and Psychological Distress." *American Psychological Review* 47: 752-764.
- Kohn, Melvin, Atsushi Naoi, Carrie Schoenbach, Carmi Schooler, and Kazimierz Slomczynski. 1990. "Position in the Class Structure and Psychological Functioning in the United States, Japan, and Poland." *American Journal of Sociology* 94: 964-1008.
- Koivusilta, L. K., Rimpelae, A. H., and Rimpelae, M. K. 1999. "Health-related Lifestyle in Adolescence: Origin of Social Class Differences in Health." *Health Education Research* 14 (3): 339-355.
- Kristenson, Margareta, Kristina Orth-Gomer, Zita Kucinskiene, Bjorn Bergdahl, Henrikas, Calkauskas, Irena Balinkyniene, and Anders Olsson. 1998. "Attenuated Cortisol Response to a Standard Stress Test in Lithuanian vs. Swedish Men." *International Journal of Behavioral Medicine* 5 (1): 17-30.
- Lachman, Margie and Susan Weaver. 1998. "The Sense of Control as a Moderator of Social Class Differences in Health and Well-Being." *Journal of Personality and Social Psychology* 74 (3): 763-773.
- Lantz, Paula, James House, James Lepkowski, David Williams, Richard Mero, and Jieming Chen. 1998. "Socioeconomic Factors, Health Behaviors, and Mortality: Results From a National Representative Prospective Study of US Adults." *Journal of the American Medical Association* 279 (21): 1703-1708.

- Lee, Philip. 1999. "Socioeconomic Status and Health: Policy Implications in Research, Public Health, and Medical Care." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: The New York Academy of Sciences, 294-301.
- Levy, Sidney. 1966. "Social Class and Consumer Behavior." In *On Knowing the Consumer*. Ed. Joseph Newman. New York: Wiley, 146-160.
- Lichtenstein, Paul, Jennifer Harris, Nancy Pederson, and G. E. McClearn. 1992. "Socioeconomic Status and Physical Health, How Are They Related? An Empirical Study Based on Twins Reared Apart and Twins Reared Together." *Social Science and Medicine* 36 (4): 441-450.
- Long, Jack, James Lynch, N. Machiran, Sue Thomas, and Kenneth Malinow. 1982. "The Effect of Status on Blood Pressure During Verbal Communication." *Journal of Behavioral Medicine* 5: 165-171.
- Long, Stephen and Susan Marquis. 1999. "Geographic Variation in Physician Visits for Uninsured Children: The Role of the Safety Net." *Journal of the American Medical Association* 281 (21): 2035-2040.
- Loughlin, Jennifer, Gilles Paradis, Katherine Gray-Donald, and Lisa Renaud. 1999. "The Impact of a Community-Based Heart Disease Prevention Program in a Low-Income, Inner-City Neighborhood." *American Journal of Public Health* 89 (12): 1819-1826.
- Lovallo, William. 1997. *Stress and Health: Biological and Psychological Interactions*. London: Sage.
- Lowry, Lois and Paula Beikirch. 1998. "Effects of Comprehensive Care on Pregnancy Outcomes." *Applied Nursing Research* 11 (2): 55-61.
- Mandelblatt, Jeanne, Robin Yabroff, and Jon Kerner. 1999. "Equitable Access to Cancer Services: A Review of the Barriers to Quality Care." *Cancer* 86 (11): 2378-2390.
- Marmot, Michael. 1999. "Epidemiology of Socioeconomic Status and Health: Are Determinants Within Countries the Same as Between Countries?" *The Society and Population Health Reader: A State and Community Perspective*. Eds. Alvin Tarlov and Robert St. Peter. New York: The New Press.
- Martin, George, Steven Austad, and Thomas Johnson. 1996. "Genetic Analysis of Aging: Role of Oxidative Damage and Environmental Stresses." *Nature Genetics* 13: 25-34.
- Martineau, Pierre. 1958. "Social Class and Spending Behavior." *Journal of Marketing* 23: 121-141.
- Mayer, Susan. 1997. *What Money Can't Buy: Family Income and Children's Life Chances*. Cambridge, MA: Harvard University Press.
- Mayer, Kurt and Walter Buckley. 1970. *Class and Society*. New York: Random.
- McCarthy, Paul, Katherine Christoffel, Claibourne Dungey, Matthew Gillman, Frederick Rivara, and John Takayama. 2000. "Race/Ethnicity, Gender, Socioeconomic Status-Research Exploring Their Effects on Child Health: A Subject Review." *Pediatrics* 105 (6): 1349-1351.
- McClelland, Douglas. 1987. *Human Motivation*. Cambridge: Cambridge University Press.

- McEwen, Bruce and Teresa Seeman. 1999. "Protective and Damaging Effects of Mediators of Stress: Elaborating and Testing the Concepts of Allostasis and Allostatic Load." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: New York Academy of Sciences, 30-47.
- Milton, Terris. 1999. "The Development and Prevention of Cardiovascular Disease Risk Factors: Socioenvironmental Influences." *Preventive Medicine* 29 (6): S11-S17.
- Moschis, George. 1987. *Consumer Socialization: A Life-cycle Perspective*. Massachusetts: Lexington.
- National Institute for Occupational Safety and Health. 2000. *Worker Health Chartbook, 2000*. Cincinnati, OH: NIOSH – Publications Dissemination.
- Ogden, Jane and Debra Thomas. 1999. "The Role of Familial Values in Understanding the Impact of Social Class on Weight Concern." *International Journal of Eating Disorders* 25 (3): 273-279.
- Olson, Jerry and J. Paul Reynolds. 1983. "Understanding Consumer's Cognitive Structures: Implications for Marketing Strategy." In *Advertising and Consumer Psychology*. Eds. Larry Percy and Arch Woodside. Lexington, MA: Lexington.
- Ostrove, Joan, Pamela Feldman, and Nancy Adler. 1999. "Relations among Socioeconomic Status Indicators and Health for African-Americans and Whites." *Journal of Health Psychology* 4 (4): 451-463.
- Pamuk, Elsie, Dianne Makuc, Katherine Heck, Cynthia Reubin, and Kimberly Lochner. 1998. *Socioeconomic Status and Health Chartbook. Health, United States*. Hyattsville, Maryland: National Center for Health Statistics.
- Pierce, John, Elizabeth Gilpin, Sherry Emery, Martha White, Brad Rosbrook, and Charles Berry. 1998. "Has the California Tobacco Control Program Reduced Smoking?" *Journal of the American Medical Association* 280 (10): 893-899.
- Reed, Christopher. 2000. "Land of the Fat." *The Bulletin* April 4: 46-47.
- Robert, Stephanie. 1999. "Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context." *Annual Review of Sociology* 25: 489-516.
- Robertson, Ian. 1987. *Sociology*. New York: Worth.
- Rodgers, G. B. 1979. "Income and Inequality as Determinants of Mortality: An International Cross-section Analysis." *Population Studies* 33: 343-351.
- Rokeach, Milton. 1973. *Understanding Human Values*. New York: Free Press.
- Roper Starch. 2001. "Lets Get Physical: What Does it Take to Get Americans Moving?" *Roper's Public Pulse*, February 1. New York: Roper Starch Worldwide.
- Ross, Catherine and John Mirowsky. 1999. "Refining the Association Between Education and Health: The Effects of Quality, Credential, and Selectivity." *Demography* 36 (4): 445-460.
- Ruzgis, Patricia and Elena Grigorenko. 1994. "Cultural Meaning Systems, Intelligence, and Personality." In *Personality and Intelligence*. Eds. Robert Sternberg and Patricia Ruzgis. Cambridge: Cambridge University Press, 248-270.

- Sapolsky, Robert, Susan Alberts, and Jeanne Altmann. 1997. "Hypercortisolism Associated With Social Subordination or Social Isolation Among Wild Baboons." *Archives of General Psychiatry* 54 (12): 1137-1143.
- Satter, Delight and Richard Brown. 2000. "Focus Groups Suggest New Strategies Are Needed to Reach Uninsured Children in Low-Income Families." *Policy Brief* (September). Los Angeles: UCLA Center for Health Policy Research.
- Schaninger, Charles. 1981. "Social Class Versus Income Revisited: An Empirical Investigation." *Journal of Marketing* 18 (May): 192-208.
- Scheff, Thomas. 1990. *Microsociology: Discourse, Emotion, and Social Structure*. Chicago: University of Chicago Press.
- Schorr, Lisbeth. 1998. *Common Purpose: Strengthening Families and Neighborhoods to Rebuild America*. New York: Anchor.
- Sciacca, John, David Dude, Brenda Phipps, and Michael Ratliff. 1995. "A Breast Feeding Education and Promotion Program: Effects on Knowledge, Attitudes, and Support for Breast Feeding." *Journal of Community Health* 20 (6): 473-488.
- Sennett, Richard and Jonathan Cobb. 1973. *The Hidden Injuries of Class*. New York: Norton.
- Shain, Martin. 1999. "The Role of the Workplace in the Production and Containment of Health Costs: The Case of Stress-related Disorders." *International Journal of Health Care Quality Assurance* 12 (2): i-vii.
- Sivadas, Eugene, George Mathew, and David Curry. 1997. "A Preliminary Examination of the Continuing Significance of Social Class to Marketing: A Geodemographic Replication." *Journal of Consumer Marketing* 14 (6): 463-479.
- Stansfeld, S. A., Head, J., and Marmot, M. G. 1998. "Explaining Social Class Differences in Depression and Well-Being." *Social Psychiatry & Psychiatric Epidemiology* 33 (1): 1-9.
- Stronks, Karien, H. van de Mheen, Caspar Looman, and Johan MacKenbach. 1998. "The Importance of Psychosocial Stressors for Socio-economic Inequalities in Perceived Health." *Social Science and Medicine* 46 (4-5): 611-623.
- Tarlov, Alvin. 1999. "Public Policy Frameworks for Improving Population Health." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: New York Academy of Sciences, 281-293.
- Taylor, Shelley and Teresa Seeman. 1999. "Psychosocial Resources and the SES-Health Relationship." In *Socioeconomic Status and Health in Industrial Nations: Social, Psychological, and Biological Pathways*. Eds. Nancy Adler, Michael Marmot, Bruce McEwen, and Judith Stewart. New York: New York Academy of Sciences, 210-225.
- Taylor, Shelley, Rena Repetti, and Teresa Seeman. 1997. "What is an Unhealthy Environment and How Does it Get Under Your Skin." *Annual Review of Psychology* 48: 411-447.
- Tellegen, Auke, David Lykken, Thomas Bouchard, Kimerly Wilcox, Nancy Segal, and Stephen Rich. 1988. "Personality Similarity in Twins Reared Apart and Together." *Journal of Personality and Social Psychology* 54 (6): 1031-1039.
- Testa, Maria and Alan Reifman. 1996. "Individual Differences in Perceived Riskiness of Drinking in Pregnancy: Antecedents and Consequences." *Journal of Studies in Alcohol*, July: 360-366.
- Trout, David. 1993. *The Thin Red Line: How the Poor Still Pay More*. San Francisco: Consumers Union.

- U.S. Census Bureau. 1999. *Poverty in the United States: 1998. Current Population Reports*, Series P60-207. Washington, DC: U.S. Government Printing Office.
- Valette-Florence, Pierre. 1998. "A Causal Analysis of Means-End Hierarchies in a Cross-Cultural Context: Methodological Refinements." *Journal of Business Research* 42: 161-166.
- Waldmann, Robert. 1992. "Income Distribution and Infant Mortality." *Quarterly Journal of Economics* 107: 1283-1302.
- Weber, Max. 1964. *The Theory of Social and Economic Organization*. New York: Free Press.
- Wilkinson, Richard. 1999. "The Culture of Inequality." In *The Society and Population Health Reader: Income Inequality and Health*. Eds. Ichiro Kawachi, Bruce Kennedy, and Richard Wilkinson. New York: The New York Press, 492-498.
- Wilkinson, Richard. 1994. "The Epidemiological Transition: From Material Scarcity to Social Disadvantage?" *Daedalus* 123: 61-77.
- Williams, David. 1990. "Socioeconomic Differentials in Health: A Review and Redirection." *Social Psychological Quarterly* 53: 81-99.
- Wolff, Edward. 1995. *Top Heavy: A Study of the Increasing Inequality of Wealth in America*. New York: 20<sup>th</sup> Century Fund Press.
- Zagonic, Robert. 1984. "On the Primacy of Affect." *American Psychologist* 39: 117-123.
- Zimbardo, Philip and John Boyd. 1999. "Putting Time in Perspective: A Valid, Reliable Individual-Difference Metric." *Journal of Personality and Social Psychology* 77 (6): 1271-1288.
- Zimbardo, Robert and Michael Leippe. 1991. *The Psychology of Attitude Change and Social Influence*. Boston: McGraw-Hill.